ACTIVE NEMS ARRAYS FOR BIOCHEMICAL ANALYSES

ABSTRACT OF THE DISCLOSURE

A biofunctionalized nanoelectromechanical device (BioNEMS) for sensing single-molecules in solution by measuring the variation in the mechanical displacement of the BioNEMS device during a binding event is provided. The biofunctionalized nanoelectromechanical device according to the invention generally comprises a nanomechanical mechanical resonator, a detector integral with the mechanical resonator for measuring the mechanical displacement of the resonator, and electronics connected to the detector for communicating the results to a user. A system of biofunctionalized nanoelectromechanical devices and a method for utilizing the biofunctionalized nanoelectromechanical device of the present invention are also provided.

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